REPORT FOR ACTION

Review of Zoning Regulations for Solar Panels, Heat Pumps, and Energy Storage Devices - Preliminary Report

Date: September 11, 2024
To: Planning and Housing Committee
From: Interim Chief Planner and Executive Director, City Planning
Wards: All

SUMMARY

As part of TransformTO, staff were requested by City Council (IE9.7) to explore opportunities to remove zoning barriers to implement solar panels, energy storage devices, and heat pumps (alternative low-carbon energy systems).

This report provides an overview of the current policy and legislative context for alternative low-carbon energy systems; summarizes emerging trends; identifies potential barriers; and sets up a proposed workplan to identify opportunities to remove barriers to implement alternative low-carbon energy systems in low-rise residential zones.

Should Planning and Housing Committee endorse this workplan, staff will undertake further analysis and stakeholder consultations and will report back in the first quarter of 2025 with a proposals report outlining proposed amendments to advance for broader public consultation and implementation.

RECOMMENDATIONS

The Interim Chief Planner and Executive Director, City Planning recommends that:

1. The Planning and Housing Committee endorse the proposed work plan and direct staff to report back with a detailed proposals report in the first quarter of 2025.

FINANCIAL IMPACT

City Planning confirms that there are no financial implications resulting from the recommendations included in this report in the current budget year or in future years.

The Chief Financial Officer and Treasurer has reviewed this report and agrees with the information as presented in the Financial Impact Section.

EQUITY IMPACT

Energy-related expenses such as fuel and electricity continue to rise, while people are increasingly investing in renewable technologies more than ever before. To respond to the pressures of climate change, industries and individuals are also being encouraged to make the switch to technologies that rely less on fossil fuels.

Climate change-related City of Toronto strategies supporting equity-deserving groups include the Resilience Strategy and TransformTO's Net Zero Strategy (TransformTO). These strategies support the reduction of reliance on fossil fuel-generated energy, enhancing Torontonians' use of renewable energy resources, promoting more efficient and effective technologies, and bolstering the stability of the electricity grid. Appropriate zoning regulations to increase opportunities for use of these technologies may result in benefits including savings on energy bills, emissions reductions, and the opportunity for economic development and job growth. These advantages can lead to improved equity, economic prosperity, and community resilience in Toronto.

CLIMATE IMPACT

In 2019, City Council declared a climate emergency for the purpose of "naming, framing and deepening our commitment to protecting our economy, our ecosystems and our community from climate change" (Item MM10.3).

City Planning acknowledges the significant role renewable energy plays addressing the climate emergency and reaching the City of Toronto’s goal of reaching net zero by 2040. Effective planning and zoning regulations can help facilitate the rapid expansion of low-carbon technologies, including solar, energy storage, and heat pumps, that aid in the reduction of carbon emissions and mitigate impacts on the electricity grid. Simplifying the process to install low-carbon heating and cooling systems, such as a heat pump, or other energy resilience technologies, is a tangible and effective way of decarbonizing a building's operational system.

In addition to carbon mitigation, low-carbon technologies, specifically solar and energy storage, will help Toronto become more resilient to the impacts of climate change, such as power outages.

DECISION HISTORY

On May 24, 2017, City Council adopted "TransformTO: Climate Action for a Healthy, Equitable and Prosperous Toronto - Report 2 - The Pathway to a Low Carbon Future to the year 2050". Development of low-carbon thermal energy networks is a fundamental component for the City to meet its 2050 GHG reduction target.
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.PE19.4

On March 26, 2018, Council adopted the report "Strategic Development of Low-Carbon Thermal Energy Networks (District Energy)", which helps the City develop an operational framework to aid in the review of potential low-carbon thermal energy network projects. It also authorized the Deputy City Manager, Internal Corporate Services to enter into the Joint Development Agreement between the City and Enwave on the terms set out in Attachment 1 to the report (March 8, 2018) from the Deputy City Manager, Internal Corporate Services, and such other terms as may be satisfactory to the Deputy City Manager, Internal Corporate Services, and in a form satisfactory to the City Solicitor.
https://secure.toronto.ca/council/agenda-item.do?item=2018.EX32.8

On December 15, 2021, City Council adopted the report "TransformTO - Critical Steps for Net Zero by 2040" (2021.IE26.16). In adopting that report, City Council endorsed the TransformTO Net Zero Strategy on climate, including the TransformTO Short-Term Implementation Plan 2022-2025. City Council adopted the community-wide target of net zero greenhouse gas emissions by 2040 and interim targets.
https://www.toronto.ca/legdocs/mmis/2022/mm/bgrd/backgroundfile-228796.pdf

On May 10, 2023, City Council received Toronto Hydro and City of Toronto Memorandum of Understanding for Toronto Hydro's Climate Advisory Services that sets out how the two parties will coordinate to advance climate action.
https://secure.toronto.ca/council/agenda-item.do?item=2023.EX4.2

On October 11, 2023, City Council adopted Member Motion 2023.MM11.25 that directs the Executive Director, Environment & Climate to include in the report on renewable energy programs, an update on activities underway at the City on large scale battery storage.
https://secure.toronto.ca/council/agenda-item.do?item=2023.MM11.25

On December 13th, 2023, City Council adopted IE9.7, "Update: City Renewable Energy Programs", and directed the Executive Director, Environment and Climate to continue to work with Toronto Hydro to accelerate efforts to streamline the grid interconnection process for solar and storage projects. It also directed staff to explore "opportunities to remove zoning barriers to solar, storage or heat pumps".
https://secure.toronto.ca/council/agenda-item.do?item=2023.IE9.7

On April 17 and 18, 2024, City Council adopted IE12.3, "Toronto's Climate Change Readiness: Updates on commitments and a refreshed mandate for coordinating resilience activities", and, in so doing, confirmed support for a renewed focus and coordinated approach on climate resilience at the City of Toronto. It also, in part,

directed the Executive Director, Environment & Climate to collaborate with community, government, and utility partners to develop a plan to collect data for tracking the installation of clean technologies, such as heat pumps and renewable energy installations in the City of Toronto.
https://secure.toronto.ca/council/agenda-item.do?item=2024.IE12.3

On July 3, 2024, the Infrastructure and Environment Committee adopted IE15.4, "Building Emissions Performance Standards - Design Principles and Development Plan", and directed the Executive Director, Environment and Climate to, in part, partner with utilities to report back on programs for homeowners and multi-residential buildings to adopt emissions reduction technologies, including streamlining programs for solar panels and heat pumps, through bulk procurement.
https://secure.toronto.ca/council/agenda-item.do?item=2024.IE15.4

BACKGROUND

In response to the climate emergency declared by City Council, the City developed the TransformTO Net Zero Strategy in 2019 to outline a pathway to achieve net zero emissions in the city by 2040. Net zero emissions means that greenhouse gas emissions are reduced to as close to zero as possible, and any remaining emissions are offset through removing carbon from the atmosphere. Actions that can remove carbon can include the restoration of natural systems, planting trees, or employing technologies that can capture and permanently store carbon before it is released into the air. TransformTO's Net Zero Strategy includes a set of low-carbon goals and short-term actions to reduce Toronto’s greenhouse gas emissions (GHG) while improving health, encouraging economic growth, improving social equity, and increasing climate resilience. One way to achieve these goals is through the use of alternative low-carbon energy systems.

To advance adoption of renewable energy sources, the Environment & Climate Division (E&C) is actively aiding residents, businesses and institutions assess their potential to invest in renewable energy technologies. E&C's SolarTO initiative helps Toronto residents and businesses with their decisions to adopt solar and storage technologies.

The building sector is the primary source of GHGs in Toronto, contributing 56 percent of the city-wide total. The Toronto Green Standard (TGS) is a set of sustainable performance measures that new development subject to planning approval is required to meet, including measures to reduce GHG emissions. All new buildings constructed by City Agencies, Corporations, and Divisions are required to comply with energy and emissions requirements outlined in the TGS for City Agency, Corporation and Division-owned facilities.

To effectively make the change to more environmentally friendly energy systems over time, a system-wide shift from fossil fuels to alternative low-carbon energy systems, regardless of the scale of development, is necessary. It has been widely accepted that green technologies have positive environmental impacts in relation to conventional energy systems, including the use of solar panels, heat pumps, and energy storage

systems. This transition requires support from all levels of government, including assurance that zoning regulations in City-wide Zoning By-law 569-2013 ("City-wide Zoning By-law") are not impeding this change.

The federal government has established several initiatives to promote the use and marketing of green energy technologies for different types of buildings. These include the Canada Greener Homes Initiative, aimed at aiding homeowners retrofitting their homes with energy efficient retrofits, and the Greener Neighbourhoods Pilot Program, which is working towards the accelerated marketing of deep energy retrofits in community housing buildings across Canada. It also has introduced the Energy Innovation Program, which advances clean energy technologies with the aim to reduce GHG emissions in the building sector, the use and storage of captured carbon, and the promotion of renewable, smart grid, and storage systems. The provincial government is advancing the use of green technologies for businesses through Invest Ontario, advancing the benefits of use, including increased sustainability and cost effectiveness.

Solar Panels

Solar panels are electronic devices which collect energy produced by the sun to be used on a site, stored in an energy storage device, or introduced to the electrical grid. The use of solar panels has increased substantially over the last decade with the introduction of new technology, a decrease in cost, and increased availability of panels for consumers to purchase.

Heat Pumps

Unlike traditional furnaces that burn oil or gas, heat pumps run on electricity. Depending on whether they are paired with additional electrified devices, a reduction of approximately 70 to 95 percent of GHG emissions can be achieved over traditional furnaces. Heat pumps transfer heat using a coolant to keep buildings warm in the winter and cool in the summer. Since these devices provide both heating and cooling capabilities, they allow consumers to purchase a single device instead of one for cooling, such as an air-conditioning unit, and another for heating, such as a furnace. Heat pumps may be installed in new or existing buildings and can be installed as either ground-mounted or wall mounted units. As heat pumps have the capability to provide localized heating and cooling, their use has become increasingly popular.

Energy Storage

Battery Energy Storage Systems (BESS) are used to either store energy or provide energy on demand emergency use. BESS are used at all scales, by electrical utility companies and for individual residential and business users. These systems are often used to ‘smooth’ or balance demand/generation to reduce need for grid upgrades. Devices for energy storage can be installed “in front of the hydro meter” as part of the electrical distribution network, or “behind the hydro meter” as part of an individual customer’s on-site infrastructure.

Energy storage devices are being introduced for domestic use on residential properties and are becoming increasingly popular. These devices are available for purchase and are small-scale; some have the capability to interact with renewable energy technologies, such as solar panels and the electrical grid. While this report aims to explore opportunities to remove City-wide Zoning By-law barriers to the installation of these technologies in low-rise residential zones, pursuit of a system-wide change by Toronto Hydro and other large energy interests includes similar technologies at a larger scale.

Ontario's Independent Electricity System Operator (IESO) has an interest in increasing the capacity of the electrical grid. The IESO is the crown corporation responsible for planning for Ontario's future energy needs and designing an efficient and evolving electricity market in Ontario. The IESO has identified that storing energy in emissions-free energy storage devices can aid in achieving this goal, contribute to making the electrical grid more resilient to disruption, and increase the low or no carbon sources of electricity.

POLICY AND PLANNING FRAMEWORK

The following pieces of provincial and municipal legislation are relevant to considering of matters related to green technologies, including solar, energy storage devices, and heat pumps.

Planning Act

Section 2 of the *Planning Act* establishes matters of provincial interest to which the City shall have regard to. It directs municipalities to ensure the orderly development of safe and healthy communities, while taking into consideration the protection of public health and safety. The Section also establishes that municipalities must promote sustainable development, encourage the mitigation of greenhouse gas emissions and the adaptation to a changing climate, and ensure the supply, efficient use, and conservation of energy and water.

Provincial Policy Statement

The Provincial Policy Statement (PPS) (2020) provides policy direction province-wide on land use planning and development to promote strong, healthy communities, wise use and management of resources, and the protection of public health and safety. The PPS is issued under Section 3 of the *Planning Act* and all decisions of Council in respect of the exercise of any authority that affects a planning matter shall be consistent with the PPS. Comments, submissions, or advice affecting a planning matter that are provided by Council shall also be consistent with the PPS.

Section 1.6.11.1 discusses planning for energy supply. It asserts that, to accommodate the current and future needs of communities, planning authorities should develop and diversify the development of energy supplies, including "electricity generation facilities and transmission and distribution systems, district energy, and renewable energy

systems and alternative energy systems". Sections 1.6.8 also speaks to electricity generation facilities and transmissions systems.

The PPS provides several definitions relating to alternative and renewable energy and its implementation. Renewable energy system is defined as "a system that generates electricity, heat and/or cooling from a renewable energy source", and "renewable energy source" as "an energy source that is renewed by natural processes and includes wind, water, biomass, biogas, biofuel, solar energy, geothermal energy and tidal forces". This definition includes various types of renewable energy sources mentioned the City-wide Zoning By-law, including solar energy, wind, and geothermal energy.

The PPS defines alternative energy system as "a system that uses sources of energy or energy conversion processes to produce power, heat and/or cooling that significantly reduces the amount of harmful emissions to the environment (air, earth and water) when compared to conventional energy systems".

The PPS defines infrastructure as "physical structures (facilities and corridors) that form the foundation for development. Infrastructure includes…electricity generation facilities, electricity transmission and distribution systems, …and associated facilities". This has the potential to include energy storage facilities, but does not specifically mention the storage of electricity.

The PPS also confirms that planning authorities should promote design opportunities that incorporate the mitigating effect of vegetation and green infrastructure. These design opportunities may contribute to the reduction of greenhouse gas emissions, improve air quality, support energy conservation and efficiency, and prepare for the impacts of a changing climate.

At the time of writing this report, the Provincial Policy Statement (2020) (PPS) is in effect. The new Provincial Planning Statement (2024) will come into effect October 20, 2024. Both documents provide province-wide policy direction on matters of provincial interest, as well as land use planning and development, to meet the needs of communities while enhancing the quality of life for Ontarians.

The Provincial Planning Statement (2024) includes a definition for an “energy storage system”: “a system or facility that captures energy produced at one time for use at a later time to reduce imbalances between energy demand and energy production, including for example, flywheels, pumped hydro storage, hydrogen storage, fuels storage, compressed air storage, and battery storage”. It also directs municipalities to support development of energy storage systems.

A Place to Grow: Growth Plan for the Greater Golden Horseshoe

The Growth Plan for the Greater Golden Horseshoe (2020) ("Growth Plan" herein) provides a strategic policy framework for managing growth and development while supporting economic prosperity, protecting the environment, and helping communities achieve a high quality of life within the Greater Golden Horseshoe, of which the City of Toronto forms an integral part.

The Growth Plan utilizes the terms "alternative energy systems" and "infrastructure" found in the Provincial Policy Statement (2020); neither definition mentions storage facilities for electricity. It also derives a definition for "renewable energy system" from the 2020 PPS, defining it as "a system that generates electricity, heat and/or cooling from a renewable energy source. For the purposes of this definition: A renewable energy source is an energy source that is renewed by natural processes and includes wind, water, biomass, biogas, biofuel, solar energy, geothermal energy and tidal forces". As suggested by the definition, this would include solar photovoltaic systems.

Section 4.1 confirms that the Growth Plan supports municipal policy that provides leadership and innovation to address climate change, and that the availability of resources, including energy, is essential for the sustainability of communities.

Section 4.2.9.1 b) directs municipalities to develop official plan policies and strategies to support energy conservation including the "identification of opportunities for conservation, energy efficiency and demand management, as well as district energy generation, renewable energy systems and alternative energy systems and distribution through community, municipal, and regional energy planning processes, and in the development of conservation and demand management plans"; and "land use patterns and urban design standards that support energy efficiency and demand reductions, and opportunities for alternative energy systems, including district energy systems".

Section 4.2.10.2 encourages municipalities to develop strategies to reduce greenhouse gas emissions and address the impacts of climate change. This is achieved through the identification of vulnerabilities to climate change, land use planning policies, infrastructure planning (including transit, energy, green infrastructure, and low-impact development), and the conservation objectives in Policy 4.2.9.1.

The Official Plan policies and City-wide Zoning By-law regulations must conform to the Growth Plan (2020). The Ministry of Municipal Affairs and Housing has introduced a proposed change to the Growth Plan (2020) and the Provincial Policy Statement (2020), to combine these provincial policy documents into a single policy instrument, the Provincial Planning Statement.

At the time of writing this report, the Growth Plan (2020) is in effect. It will cease to be in effect when the new Provincial Planning Statement (2024) comes into force on October 20, 2024. Both pieces of legislation provide provincial-wide policy direction on matters of provincial interest on land use planning and development to meet the needs of communities and enhance the quality of life for Ontarians.

Electricity Act and Green Energy Act

The *Electricity Act*, 1998 was first introduced by the provincial government in 1998 with the purpose of establishing a system for energy planning, ensuring the sustainability of the electrical supply in Ontario, and the promotion of energy conservation and the use of alternative energy sources and renewable energy sources. The *Green Energy Act*, 2009 was introduced in Ontario in 2009 to promote renewable energy projects and promoting the expansion of energy conservation efforts.

The *Green Energy Act*, 2009 exempted renewable energy projects from zoning by-laws to remove barriers to siting these projects. On January 1, 2019, the *Green Energy Repeal Act*, 2018 restored the applicability of zoning by-laws to these projects and removed the ability to appeal a Zoning By-law Amendment authorizing a renewable energy undertaking.

Despite the repeal of the *Green Energy Act*, 2009, energy efficiency initiatives were re-introduced in the *Electricity Act*, through O. Reg 508/18. The *Electricity Act (1998)* defines "Renewable Energy Generation Facility" as “a generation facility that generates electricity from a renewable energy source…and includes associated or ancillary equipment, systems and technologies as may be prescribed by regulation…".

"Renewable Energy Source" is defined as "an energy source that is renewed by natural processes and includes wind, water, biomass, biogas, biofuel, solar energy, geothermal energy, tidal forces and such other energy sources as may be prescribed by the regulations, but only if the energy source satisfies such criteria as may be prescribed by the regulations for that energy source". This definition includes the mention of various types of renewable energy sources mentioned in City-wide Zoning By-law, including solar energy, wind, and geothermal energy.

City of Toronto Official Plan

The City of Toronto Official Plan (2023) contains policies to direct growth and development within the city and sets out standards and objectives for land use in Toronto, including built form, the public realm, and environmental considerations. The following policies mention the bolstering of the City’s electric grid, the investment of renewable energy technologies, and heating and cooling systems.

Chapter 1 Making Choices establishes that the "City of Toronto is committed to using planning as a tool to achieve net zero emissions" throughout the city. The City is also committed to "applying a climate change lens to all aspects of planning, and becoming resilient and adaptable to the future impacts of a changing climate".

Chapter 2 Shaping the City sets out the urban structure of the City, develops a strategy for guiding growth within the structure, and sets out policies for the management of change. Policy 2.2.1.3(e) states that investment in downtown Toronto by various levels of government and public/private partnerships should be sought, including "a stable and secure hydro-electric grid, communications networks, district heating and cooling distribution systems, and water, wastewater and stormwater management infrastructure”.

Policy 2.2.2.2(n) requires that planning in Secondary Plans in the Urban Growth Centres is to include the assessment of opportunities for "i. energy conservation, including peak demand reduction; ii. resilience to power disruptions; and iii. small local energy solutions that incorporate renewables, district energy, combined heat and power or energy storage through preparation of a Community Energy Plan".

Chapter 3 Building a Successful City establishes policies to guide decision making based on the Official Plan’s goals for the human, built, economic, and natural

environments. This includes Policy 3.3.1(f), which indicates that new neighbourhoods with a comprehensive planning framework are required to include “a strategy for energy conservation, peak demand reduction, resilience to power disruptions and small local integrated energy solutions that incorporate renewables, district energy, combined heat and power or energy storage”.

Policy 3.4.19(d) supports and encourages innovative energy producing options, sustainable design, construction practices, and green industry in new development and building renovations. This is supported and encouraged through “advanced energy conservation and efficiency technologies and processes that contribute towards an energy neutral built environment, including:

> i. establishing and extending district heating and cooling facilities and connections;
> ii. renewable energy systems including wind and solar power;
> iii. small local integrated energy solutions such as combined heat and power and energy storage;
> iv. active and passive design measures that conserve energy and reduce peak demand; and
> v. back-up power systems to improve resiliency to power interruptions".

Policy 3.4.20 states that "development, redevelopment and infrastructure that will assist in achieving green house gas emissions reductions, consistent with international, national and municipal targets will be encouraged".

Policy 4.1 provides direction for the Neighbourhoods designation, which is implemented in the Residential zone category of the City-wide Zoning By-law and permits a range of residential uses. Policies 4.1.5 and 4.1.9 indicate that buildings, structures, and associated elements are required to "fit" with the existing physical character of existing neighbourhoods.

Policy 5.2.1.4(g) states that Secondary Plans shall determine "opportunities for energy conservation, peak demand reduction, resilience to power disruptions, and small local integrated energy solutions that incorporate renewables, district energy, combined heat and power or energy storage, through development of a Community Energy Plan”.

Official Plan Amendment (OPA) 583 was adopted by City Council on June 15, 2022 through 2022.PH34.1. This amendment included updates to policies requiring assessments for opportunities to achieve net zero development, including embodied carbon emission. OPA 583 is currently pending a decision by the Minister of Municipal Affairs and Housing.

City-wide Zoning By-law 569-2013

On May 9, 2013, City Council enacted City-wide Zoning By-law 569-2013 which harmonized 43 former municipal by-laws into one zoning by-law. The City-wide Zoning By-law comprehensively regulates all land uses, buildings and structures and applies to most of the City of Toronto. As some lands are not covered by the City-wide Zoning By-

law, the comprehensive zoning by-laws from former municipalities remain in effect on some lands in the city.

Regulations in the City-wide Zoning By-law have not been updated with other legislation passed or altered since the enactment of the By-law in 2013, such as the *Electricity Act*.

Solar Panels

During development of the harmonized City-wide Zoning By-law, regulations were introduced to regulate the location of solar energy devices. On March 3, 2008, City Council enacted a by-law to permit the production and distribution of energy from specific renewable energy devices, including solar energy devices in any zone in the general zoning by-laws of the former area municipalities. These regulations were carried forward in City-wide Zoning By-law 569-2013.

The City-wide Zoning By-law defines Solar Energy as "energy from the sun that is converted to produce electrical or thermal energy". The By-law includes regulations for solar energy devices across all zone categories and includes specific regulations when they are associated with garden suites.

In low-rise residential zones (e.g. R, RD, RS, RT, and RM zones), the City-wide Zoning By-law regulates the required minimum building setbacks and permitted maximum height of both ground mounted and wall mounted solar panels. Both must typically comply with the minimum building setbacks for a principal building on the lot. When attached to an ancillary building or structure, including those containing garden suites, solar panels must comply with regulations associated with the ancillary building.

Both wall and roof mounted solar panels on a garden suite and residential buildings that are not apartment buildings are permitted to project up to 1.2 metres above the permitted maximum height of the building. Wall or roof mounted solar panels are permitted to project up to 2.0 metres above the permitted maximum height of apartment buildings and non-residential buildings in the Residential Zone Category.
When located on a lot with a residential building, ground mounted solar panels are regulated in the same manner as an ancillary building on the lot, and are subject to the same performance standards. When no residential building is located on the lot, they must comply with the performance standards for a principal building or structure on the lot.

Heat Pumps

Zoning regulations regarding the location of air conditioning units were brought forward into the City-wide Zoning By-law from the Former City of Etobicoke Zoning By-law and did not contemplate heat pumps. Heat pumps are not defined in the City-wide Zoning By-law, however, devices that are ground mounted or wall mounted, and provide heating and air conditioning (e.g. heat pumps) are regulated as air conditioning devices.

The City-wide Zoning By-law permits wall mounted air conditioning devices to encroach into building setbacks in the Residential Zone Category. On principal buildings, the units

are required to be no closer than 0.3 metres from a lot line, and may encroach no more than 0.9 metres into a rear yard or side yard setback if not located above the first storey.

Wall mounted air conditioning devices on garden suites or laneway suites in these zones are also regulated by Zoning By-law 569-2013. When on a garden suite, they are required to be no closer than 0.3 metres from a lot line, and may encroach up to 0.6 metres into a setback or required separation distance. When on a laneway suite, they may be located on the front of the building or the wall abutting the lane, and are permitted to encroach up to 0.6 metres into a setback or required separation distance.

Ground mounted heating and air conditioning devices are permitted to be in the front, side, or rear yard. Devices located in the front yard are required to be located at least 6.0 metres from the front lot line, and, when proposed in a rear yard, must be located no more than 2.0 metres from the rear wall of the main building on the lot. When located in the side yard, devices must be no closer to the side lot line than the lesser of 0.9 metres or the required minimum side yard setback for the main building on the lot.

Roof mounted heating and cooling devices are considered by Zoning By-law 569-2013 as elements for the functional operation of a building. These elements are permitted to project up to 5.0 metres above the permitted maximum height of a principal building on a lot. They are also permitted to cover no more than 30 percent of the total roof area, and if any such elements are located within 6.0 metres of a lot line, they may not exceed 20 percent of the width of the building's walls facing a street.

Roof mounted heating and cooling devices may exceed the maximum height of a garden suite by 1.0 metre, and must be set back at least 1.0 metre from a main wall of the building. Similarly, these devices may exceed the maximum height of a laneway suite by 1.5 metre, and must be set back at least 1.5 metre from a main wall of the building. Roof mounted heating and cooling devices may cover no more than 30 percent of the area of the roof of each of the building types.

Energy Storage

The City-wide Zoning By-law does not specifically address energy storage devices or batteries. Regulation 5.10.20.1(1) states that “Uses that are ancillary to a permitted use on the same lot, are permitted if they comply with the regulations of the zone in which the lot is located”.

COMMENTS

Staff have reviewed the City-wide Zoning By-law to identify potential barriers to the installation of solar panels, energy storage devices, and heat pumps in low-rise residential zones. The study intends to further investigate these potential barriers.

Solar Panels

The zoning regulations for solar panels predate changes to the *Electricity Act* in 2018, which require a review of the Zoning By-law to determine the extent to which the City may regulate wall and roof mounted solar panels, in consultation with Legal Services. Staff may identify other potential zoning barriers to permit solar panels in low-rise residential zones.

Heat Pumps

The installation of a heat pump does not require a building permit, and as a result, zoning compliance is often not identified. In addition, drawings submitted as part of an application to Toronto Building frequently do not include the location of heat pumps. Zoning non-compliance is often only confirmed when applicants are seeking a minor variance from the City-wide Zoning By-law for other building changes (e.g. building setbacks).

The City-wide Zoning By-law regulates the distance that heat pumps and air conditioning devices are permitted to encroach into required minimum building setbacks. Small lots in the former City of Toronto often cannot comply with the required front yard setback requirement for heating or cooling devices.

Energy Storage

The City-wide Zoning By-law does not specifically address energy storage devices. Alternative low-carbon energy systems producing renewable energy or cogeneration energy, such as solar panels or wind turbines, may have an ancillary energy storage system on the same lot. These devices may be wall, ground, or roof mounted, or inside an ancillary building or structure. Staff will consider how and if energy storage devices should be defined and regulated in low-rise residential zones.

STUDY APPROACH

Staff propose the following approach to explore opportunities to remove barriers to implement solar panels, electrical energy storage, and heat pumps.

The Official Plan includes policies that align with divisional priorities on the TransformTO Net Zero Strategy and SolarTO. City Planning staff will work collaboratively with external partners and other City Divisions, including Environment and Climate, Toronto Building, Legal Services, Development Review, Transportation Services, and Toronto Hydro.

Staff will review alternative low-carbon energy system projects in low-rise residential zones to understand the approval process, determine the type of required approvals (including trends in required approvals), and identify potential challenges to implementation.

A jurisdictional scan and review of emerging best practices will be conducted to better understand how solar panels, heat pumps, and energy storage facilities are regulated and permitted in similar municipalities. New York City has recently enhanced permissions for heat pumps and the City of Ottawa is performing a zoning update to allow for more large-scale energy storage.

Staff will undertake a review of legislative and policy requirements to determine if updates are needed to the City-wide Zoning By-law definitions and performance standards to identify opportunities to remove barriers to implement alternative low-carbon energy systems in low-rise residential zones.

To better understand the physical requirements of the technologies, staff will engage with industry stakeholders, technical experts and interest groups, such as the Toronto Atmospheric Fund (TAF), NRSTor, Ecosystem, and Heliotechnic to identify barriers and opportunities to implement alternative low-carbon energy systems in low-rise residential zones.

Staff anticipate conducting this research and stakeholder consultation in the fall of 2024 and reporting back in Q1 2025 with proposals to advance for broader public consultation and implementation.

CONCLUSION

Should Planning and Housing Committee endorse this workplan, staff will undertake further analysis and stakeholder consultations and will report back in Q1 2025 with a proposals report outlining proposed amendments to advance for broader public consultation and implementation.

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